

WHAT IS CLAIMED IS:

1. A system for providing real-time multimedia conferencing services, to a dispersed plurality of locations connected to an ATM wide area network (WAN), the system comprising:

5 the ATM wide area network (WAN) including an ATM backbone network domain and at least one ATM access network domain; and

one or more ATM cable modems,

wherein a headend station-based ATM cable modem is provided at each ATM access network domain in said WAN, and

10 further wherein said ATM cable modems are designed to carry two-way multimedia signals.

2. The system of claim 1, wherein a number of ATM access network domains in the WAN is based on a size of a WAN.

3. The system of claim 2, wherein each ATM access network domain
15 includes at least one access multimedia bridge server and at least one cable modem server.

4. The system of claim 3, wherein the ATM backbone network domain includes at least one central multimedia bridge server and at least one central ATM network server.

20 5. The system of claim 4, wherein each ATM access network domain includes an ATM access node/switch connected to an ATM node/switch of the ATM backbone network domain.

6. The system of claim 5, wherein the cable modem server and the access multimedia bridge server in each ATM access network domain is connected to the ATM access node/switch in said ATM access network domain.

5 7. The system of claim 5, wherein a headend station-based ATM cable modem is connected to the ATM access node/switch in said ATM access network domain.

8. The system of claim 4, wherein a hybrid fiber coaxial (HFC) access network connects an ATM cable modem to an ATM access network domain within the WAN.

10 9. The system of claim 4, wherein an ATM connection is provided directly to the ATM backbone network domain or to an ATM access network domain access node.

10. The system of claim 8, wherein a plurality of locations in a multimedia conference call are all connected to a single ATM access network domain

11. The system of claim 8, wherein the locations in a multimedia conference
15 are connected to a plurality of ATM access network domains.

12. The system of claim 1, wherein:

the one or more ATM cable modems include a local area network medium access (MAC) access and ATM protocol conversion system.

13. The system of claim 1, wherein:

20 the one or more ATM cable modems include a hybrid fiber coaxial (HFC) medium access control (MAC) and an ATM protocol system.

14. The system of claim 1, wherein:

the one or more ATM cable modems include a modulation/demodulation system for an hybrid fiber coaxial (HFC) network.

15. The method of real-time multipoint, multimedia conference and collaborative services integrated with a hybrid fiber coaxial cable network including one or more cable modem servers and using ATM modems and an ATM wide area network using a central ATM server and one or more ATM access network domains and having a CM-ARQ control and signaling message of a CMsig scheme, comprising:

initializing the CM-ARQ control and signaling message;

determining if a call is received by the central ATM server or a cable modem server;

determining whether an addresses of all calling and called endpoints of a conference call reside in a same ATM access network domain;

sending details of a conference to a central ATM server from a cable modem server;

computing a bandwidth requirement algorithm for the HFC network; and

routing a calling party's call to the central ATM server if an addresses of calling and called end points do not reside in a same ATM access network domain by relaying a CM-ARQ control and signaling message of a CMsig scheme.